

PHNL030969

PCT/IB2004/051407

19

## CLAIMS:

1. An electrophoretic display panel (1), comprising:
    - an electrophoretic medium (5) comprising charged particles (6);
    - a plurality of picture elements (2);
    - electrodes (3,4) associated with each picture element (2) for receiving a potential
    - 5 difference; and
    - drive means (100),the drive means (100) being arranged for controlling the potential difference of each picture element (2)
    - to be a grey scale potential difference for enabling the particles (6) to occupy the
    - 10 position corresponding to the image information,wherein the drive means (100) are further arranged to control for each picture element the grey scale potential difference for at least a subset of all drive waveforms to be a sequence of potential differences, the potential values in the sequence alternating in sign, wherein the energy in the potential difference ( $V \times t$ ) of one sign is substantially more than the energy of
  - 15 potential differences of the other sign.
2. An electrophoretic display panel (1) as claimed in claim 1, wherein the drive means (100) are arranged for controlling the potential difference of each picture element (2)
    - to be a reset potential difference having a reset value and a reset duration for enabling
    - 20 particles (6) to substantially occupy one of the extreme positions, prior to the grey scale potential differences.
3. An electrophoretic display panel as claimed in claim 1 or 2, characterized in that the grey scale potential difference comprises a symmetric subsequence of potential
  - 25 differences, the potential values in the sequence alternating in sign, wherein the energy in the potential difference ( $V \times t$ ) of one sign is substantially the same as the energy in potential difference of the opposite sign.

PHNL030969

PCT/IB2004/051407

20

4. An electrophoretic display panel as claimed in claim 3, wherein the symmetric subsequence is an intermediate subsequence.
5. An electrophoretic display panel as claimed in claim 3, wherein the symmetric subsequence is an initial subsequence.
6. An electrophoretic display panel as claimed in claim 1, wherein the sequence of potential differences comprises at least one time interval in which the applied voltage has a voltage value below a threshold voltage value below which the particle(s) remain substantially in their position.
7. A method for driving an electrophoretic display device comprising:  
- an electrophoretic medium (5) comprising charged particles (6);  
a plurality of picture elements (2), in which method the grey scale potential differences for at least a subset of all drive waveforms for setting a picture element to a greyscale optical state is applied in a sequence of potential differences, the potential values in the sequence alternating in sign, wherein the energy in the potential difference ( $V \times t$ ) of one sign is substantially more than the energy of potential differences of the other sign.
8. A method for driving an electrophoretic display device as claimed in claim 7, wherein prior to application of the grey scale potential differences reset potential differences are applied having a reset value and a reset duration for enabling particles (6) to substantially occupy one of the extreme positions.
9. A method as claimed in claim 7 or 8, wherein the grey scale potential difference comprises a symmetric subsequence of potential differences, the potential values in the sequence alternating in sign, wherein the energy in the potential difference ( $V \cdot t$ ) of one sign is substantially the same as the energy in potential difference of the opposite sign.
10. A method as claimed in claim 9, wherein the symmetric subsequence is applied as an intermediate subsequence.
11. A method as claimed in claim 9, wherein the symmetric subsequence is applied as an initial subsequence.

PHNL030969

PCT/IB2004/051407

21

12. A method as claimed in claim 7, wherein the applied sequence of potential differences comprises at least one time interval in which the applied voltage has a voltage value below a threshold voltage value below which the particle(s) remain substantially in their position.
13. Computer program comprising program code means for performing a method in accordance with a method as claimed in any of the claims 7 to 12 when said program is run on a computer.
14. Computer program product comprising program code means stored on a computer readable medium for performing a method as claimed in any of the claims 7 to 12 when said program is run on a computer.
15. Computer program product comprising program code means for use in display panel as claimed in any of the claims 1 to 7, for performing the action specific for said claims.
16. Drive means (100) for driving an electrophoretic display panel (1), said display panel (1), comprising:
- an electrophoretic medium (5) comprising charged particles (6);
  - a plurality of picture elements (2);
  - electrodes (3,4) associated with each picture element (2) for receiving a potential difference;
- said drive means (100) being arranged for controlling the potential difference of each picture element (2) to be a grey scale potential difference for enabling the particles (6) to occupy the position corresponding to the image information,
- said drive means (100) being further arranged to control for each picture element the grey scale potential difference for at least a subset of all drive waveforms to be a sequence of potential differences, the potential values in the sequence alternating in sign, wherein the energy in the potential difference ( $V \times t$ ) of one sign is substantially more than the energy of potential differences of the other sign.